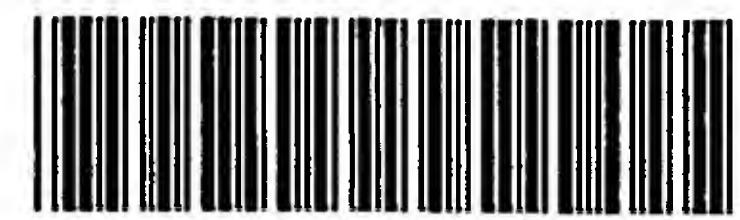


RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/588,052
Source: IFwP
Date Processed by STIC: 8/10/06

ENTERED



IFWP

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/588,052

DATE: 08/10/2006
TIME: 11:05:24

Input Set : A:\44352-0011-00-US sequence listing(pct 05 235).txt
Output Set: N:\CRF4\08102006\J588052.raw

3 <110> APPLICANT: Lifenza Co., Ltd.
5 <120> TITLE OF INVENTION: PROTEIN WITH ACTIVITY OF HYDROLYZING AMYLOPECTIN, STARCH,
6 GLYCOGEN AND AMYLOSE, GENE ENCODING THE SAME, CELL EXPRESSING THE
7 SAME, AND PRODUCTION METHOD THEREOF
C--> 9 <140> CURRENT APPLICATION NUMBER: US/10/588,052
C--> 9 <141> CURRENT FILING DATE: 2006-07-31
W--> 0 <130> FILE REFERENCE:
9 <150> PRIOR APPLICATION NUMBER: KR2004-0006186
10 <151> PRIOR FILING DATE: 2004-01-30
12 <160> NUMBER OF SEQ ID NOS: 4
14 <170> SOFTWARE: KopatentIn 1.71
16 <210> SEQ ID NO: 1
17 <211> LENGTH: 647
18 <212> TYPE: PRT
19 <213> ORGANISM: Artificial Sequence
21 <220> FEATURE:
22 <223> OTHER INFORMATION: E. coli BL21(DE3)pLysS
25 <400> SEQUENCE: 1
26 Met Leu Leu Ile Asn Phe Phe Ile Ala Val Leu Gly Val Ile Ser Leu
27 1 5 10 15
29 Ser Pro Ile Val Val Ala Arg Tyr Ile Leu Arg Arg Asp Cys Thr Thr
30 20 25 30
32 Val Thr Val Leu Ser Ser Pro Glu Ser Val Thr Ser Ser Asn His Val
33 35 40 45
35 Glu Leu Ala Ser His Glu Met Cys Asp Ser Thr Leu Ser Ala Ser Leu
36 50 55 60
38 Tyr Ile Tyr Asn Asp Asp Tyr Asp Lys Ile Val Thr Leu Tyr Tyr Leu
39 65 70 75 80
41 Thr Ser Ser Gly Thr Thr Gly Ser Val Thr Ala Ser Tyr Ser Ser Ser
42 85 90 95
44 Leu Ser Asn Asn Trp Glu Leu Trp Ser Leu Ser Ala Pro Ala Ala Asp
45 100 105 110
47 Ala Val Glu Ile Thr Gly Ala Ser Tyr Val Asp Ser Asp Ala Ser Ala
48 115 120 125
50 Thr Tyr Ala Thr Ser Phe Asp Ile Pro Leu Thr Thr Thr Thr Ser
51 130 135 140
53 Ser Ser Ser Ala Ser Ala Thr Ser Thr Ser Ser Leu Thr Thr Thr Ser
54 145 150 155 160
56 Ser Val Ser Ile Ser Val Ser Val Pro Thr Gly Thr Ala Ala Asn Trp
57 165 170 175
59 Arg Gly Arg Ala Ile Tyr Glu Ile Val Thr Asp Arg Phe Ala Arg Thr
60 180 185 190
62 Asp Gly Ser Thr Thr Tyr Leu Cys Asp Val Thr Asp Arg Val Tyr Cys

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/588,052

DATE: 08/10/2006
TIME: 11:05:24

Input Set : A:\44352-0011-00-US sequence listing(pct 05 235).txt
Output Set: N:\CRF4\08102006\J588052.raw

63	195	200	205													
65	Gly	Gly	Ser	Tyr	Glu	Gly	Ile	Ile	Asn	Met	Leu	Asp	Tyr	Ile	Glu	Gly
66	210			215											220	
68	Met	Gly	Phe	Thr	Ala	Ile	Trp	Ile	Ser	Pro	Ile	Val	Glu	Asn	Ile	Pro
69	225				230					235						240
71	Asp	Asp	Thr	Gly	Tyr	Gly	Tyr	Ala	Tyr	His	Gly	Tyr	Trp	Met	Lys	Asp
72					245				250							255
74	Ile	Phe	Ala	Leu	Asn	Thr	Asn	Phe	Gly	Thr	Ala	Asp	Asp	Leu	Ile	Ala
75				260					265							270
77	Leu	Ala	Thr	Glu	Leu	His	Asn	Arg	Gly	Met	Tyr	Leu	Met	Val	Asp	Ile
78				275				280								285
80	Val	Val	Asn	His	Phe	Ala	Phe	Ser	Gly	Ser	His	Ala	Asp	Val	Asp	Tyr
81		290				295										300
83	Ser	Glu	Tyr	Phe	Pro	Tyr	Ser	Ser	Glu	Asp	Tyr	Phe	His	Ser	Phe	Cys
84	305				310					315						320
86	Trp	Ile	Thr	Asp	Tyr	Ser	Asn	Glu	Thr	Asn	Val	Glu	Gln	Cys	Trp	Leu
87					325				330							335
89	Gly	Asp	Asp	Thr	Val	Pro	Leu	Val	Asp	Val	Asn	Thr	Glu	Leu	Asp	Thr
90				340				345								350
92	Val	Lys	Ser	Glu	Tyr	Gln	Ser	Trp	Val	Glu	Glu	Leu	Ile	Ala	Asn	Tyr
93		355				360				365						
95	Ser	Ile	Asp	Gly	Leu	Arg	Ile	Asp	Thr	Val	Lys	His	Val	Glu	Met	Asp
96		370				375				380						
98	Phe	Trp	Ala	Pro	Phe	Glu	Glu	Ala	Ala	Gly	Ile	Tyr	Ala	Val	Gly	Glu
99	385				390				395							400
101	Val	Phe	Asp	Gly	Asp	Pro	Ser	Tyr	Thr	Cys	Pro	Tyr	Glu	Glu	Asn	Leu
102					405				410							415
104	Asp	Gly	Val	Leu	Asn	Tyr	Pro	Val	Tyr	Tyr	Pro	Val	Val	Ser	Ala	Phe
105			420					425								430
107	Glu	Ser	Val	Ser	Gly	Ser	Val	Ser	Ser	Leu	Val	Asp	Met	Ile	Asp	Thr
108			435					440								445
110	Leu	Lys	Ser	Glu	Cys	Thr	Asp	Thr	Thr	Leu	Leu	Gly	Ser	Phe	Leu	Glu
111		450				455				460						
113	Asn	Glu	Asp	Asn	Pro	Arg	Phe	Pro	Ser	Tyr	Thr	Ser	Asp	Glu	Ser	Leu
114	465				470				475							480
116	Ile	Lys	Asn	Ala	Ile	Ala	Phe	Thr	Met	Leu	Ser	Asp	Gly	Ile	Pro	Ile
117					485				490							495
119	Ile	Tyr	Tyr	Gly	Glu	Glu	Gln	Gly	Leu	Asn	Gly	Gly	Asn	Asp	Pro	Tyr
120					500				505							510
122	Asn	Arg	Glu	Ala	Leu	Trp	Leu	Thr	Gly	Tyr	Ser	Thr	Thr	Ser	Thr	Phe
123					515				520							525
125	Tyr	Lys	Tyr	Ile	Ala	Ser	Leu	Asn	Glu	Ile	Arg	Asn	Glu	Ala	Ile	Tyr
126		530					535				540					
128	Lys	Asp	Asp	Thr	Tyr	Leu	Thr	Tyr	Glu	Asn	Trp	Val	Ile	Tyr	Ser	Asp
129	545				550				555							560
131	Ser	Thr	Thr	Ile	Ala	Met	Arg	Lys	Gly	Phe	Thr	Gly	Asn	Glu	Ile	Ile
132					565				570							575
134	Thr	Val	Leu	Ser	Asn	Leu	Gly	Thr	Ser	Gly	Ser	Ser	Tyr	Thr	Leu	Thr
135					580				585							590

RAW SEQUENCE LISTING DATE: 08/10/2006
PATENT APPLICATION: US/10/588,052 TIME: 11:05:24

137 Leu Ser Asn Thr Gly Tyr Thr Ala Ser Ser Val Val Tyr Glu Ile Leu
 138 595 600 605
 140 Thr Cys Thr Ala Val Thr Val Asp Ser Ser Gly Asn Leu Ala Val Pro
 141 610 615 620
 143 Met Ser Ser Gly Leu Pro Lys Val Phe Tyr Glu Glu Ser Gln Leu Val
 144 625 630 635 640
 146 Gly Ser Gly Ile Cys Ser Met
 147 645
 150 <210> SEQ ID NO: 2
 151 <211> LENGTH: 1946
 152 <212> TYPE: DNA
 153 <213> ORGANISM: Artificial Sequence
 155 <220> FEATURE:
 156 <223> OTHER INFORMATION: E. coli BL21(DE3)pLySS
 159 <400> SEQUENCE: 2
 160 atgttgctga tcaactttt catcgctgtt ctgggagtga tatcactgtc tcctattgtg 60
 162 gttgctcggtt atattcttcg acgagattgc actacagttt cggctttgtc ctccccctgag 120
 164 tctgtgacga gttcgaacca tggtagctt gccagtcattt agatgtgcga cagtagctt 180
 166 tcagcgtccc tttatatcta caatgtatgtat tatgataaga ttgtgacact ttattatctt 240
 168 acatcgctgg gcacaactgg gtccgttaaca gcgtcttattt cttcttagttt gagtaacaac 300
 170 tggaaattgtt ggtctcttc ggctccggctt gcagatgcttgc tcgagatcac tggagctgt 360
 172 tatgttagaca gcgatgcattc tgcgacatac gccacgtctt ttgatataacc tcttactacc 420
 174 acgacaacgtt cgtcgcttc tgcttagtgcg acttcaacat ctagtctaacc cacaacatct 480
 176 agtgtttcca tttcggtgtc cgtccctaca ggaacagctt gaaattggcg aggttagggct 540
 178 atctatcaga tcgtgactga tagatttgca cgcactgacg gctccaccac atatttatgc 600
 180 gatgttaccg atagggtcta ttgcggaggg tcttattcagg ggattatcaa tatgctggat 660
 182 tacatccaag gcatgggctt tactgctattt tggatttctc ctatagtggaa aaatattccc 720
 184 gatgacaccgg gatacggtt cgcattatcat gtttattggaa tgaaagatat cttcgccctg 780
 186 aatacaaattt ttggtagtgc agacgatttgc atagcggtgg ctacggaaattt gcataatcg 840
 188 ggcattgtact tggatgggttga tattgttgc aatcactttt ctttctcagg aagtcatgcc 900
 190 gacgtggactt actctgaata tttccctat tgcgtccagg attattttca ttcatatttgc 960
 192 tggattacag attactcgaa tcagacaaac gttgagcagt gctggcttgg cgacgatact 1020
 194 gttcctctcg tggacgttcaa taccctactt gacaccgttga aaagtgaata tcaatcctgg 1080
 196 gttcaagaac ttatagctaa ttactctattt gacggcctaa gaattgacac cgtcaagcac 1140
 198 gtgcagatggg atttttgggc accatttcaa gaggctgcag ggatttacgc cgttgggtgaa 1200
 200 gtattcgacg gtgatccatc ctacacatgtt ccatatcagg aaaatcttgc cgggttcttg 1260
 202 aattatcctg tttattatcc tgcgtctctt gcttttgaga gtgttagtgg gtcgggtctcc 1320
 204 tcgttagtcg atatgattga tacgctcaag tctgaatgca ccgacactac tctccttaggc 1380
 206 tcctttctag agaatcaaga taatccgcga ttcccttagctt acacttctga tgagtcttta 1440
 208 attaaaaatgcgatcgctt cactatgctt tcagacggca ttcccataat ttattacgg 1500
 210 caggagcaag gcctcaatgg tggaaacgtt ccctataatc gagaggcgctt ttggcttacg 1560
 212 ggctactcca caacgtcgac gttctacaaa tacattgcgtt cgttgaatca gattagaaat 1620
 214 caggctatat acaaagatga tacttatctc acatatcaga actgggttat ttattcggat 1680
 216 tccacgcacaa tagcaatgcg gaaagggtttt acagggacc aaataattac ggttctgtca 1740
 218 aatcttggga ccagtggcag ttcgtacact ttgacgctttt cgaatacggg atataaccgca 1800
 220 tctagcgttg tatatgagat cttgacatgc acagctgtga ctgtggattt gtcgtggaaat 1860
 222 ttggcagtgc cgatgtccag tggcctacca aaagtctttt atcaggaatc gcaactgggtt 1920
 224 ggctctggaa tctgctccat gtagag 1946

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/588,052

DATE: 08/10/2006
TIME: 11:05:24

Input Set : A:\44352-0011-00-US sequence listing(pct 05 235).txt
Output Set: N:\CRF4\08102006\J588052.raw

228 <211> LENGTH: 27
229 <212> TYPE: DNA
230 <213> ORGANISM: Artificial Sequence
232 <220> FEATURE:
233 <223> OTHER INFORMATION: L. starkeyi primer 1(sense)
236 <400> SEQUENCE: 3
237 tacagttacg gtcttgcct cccctga 27
240 <210> SEQ ID NO: 4
241 <211> LENGTH: 21
242 <212> TYPE: DNA
243 <213> ORGANISM: Artificial Sequence
245 <220> FEATURE:
246 <223> OTHER INFORMATION: L. starkeyi primer 2(antisense)
249 <400> SEQUENCE: 4
250 ctctacatgg agcagattcc a 21

VERIFICATION SUMMARY
PATENT APPLICATION: US/10/588,052

DATE: 08/10/2006
TIME: 11:05:25

Input Set : A:\44352-0011-00-US sequence listing(pct 05 235).txt
Output Set: N:\CRF4\08102006\J588052.raw

L:9 M:270 C: Current Application Number differs, Replaced Current Application No
L:9 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:0 M:201 W: Mandatory field data missing, <130> FILE REFERENCE